Microfluidic image cytometry for quantitative single-cell profiling of human pluripotent stem cells in chemically defined conditions.

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Public Summary:

Scientific Abstract:
Microfluidic image cytometry (MIC) has been developed to study phenotypes of various hPSC lines by screening several chemically defined serum/feeder-free conditions. A chemically defined hPSC culture was established using 20 ng mL(-1) of bFGF on 20 microg mL(-1) of Matrigel to grow hPSCs over a week in an undifferentiated state. Following hPSC culture, we conducted quantitative MIC to perform a single cell profiling of simultaneously detected protein expression (OCT4 and SSEA1). Using clustering analysis, we were able to systematically compare the characteristics of various hPSC lines in different conditions.